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Editorial

Professor Yoshinori Tashiro's contribution to Orthopedic Surgery

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Orthopedic surgery was introduced to Japan 100 years ago, and the departments of orthopedic surgery at Tokyo University and Kyoto University were founded in 1906, followed by that at Kyushu University in 1909. Yoshinori Tashiro (1864–1938) was the first professor of orthopedic surgery at Tokyo University. He was instrumental in importing modern orthopedic surgery from Europe and laying the foundations for its practice in Japan. He was also responsible for introducing the Japanese term for orthopedic surgery, *seikei-geka*.

Today, the circumstances related to orthopedic surgery are changing rapidly in Japan. A plan for governmental health care reform is now in the process of implementation to address the aging of the population and the decreased birth rate. Remarkable progress has been made in various subspecialty fields of orthopedics, and a tendency for the field to subdivide is now evident. These are situations that have not been experienced previously. This year is the centennial of the introduction of modern orthopedics to Japan. A centennial provides a good opportunity to look back at the past and perhaps also to look at the future. In this context it is perhaps instructive to examine Prof. Tashiro's motivation and how he set about introducing and developing modern orthopedic surgery in Japan.

Prof. Tashiro's adoptive father, Motonori Tashiro, was also a famous surgeon. He was the head of the army's medical school and wrote a book, *Setsudan Yoho* (*Methods of Amputation*). Yoshinori Tashiro, graduated from Tokyo University in 1888 and also majored in surgery. At that time, Japan was actively introducing modern medicine from Europe, but among the medical specialists there was already a desire for the Japanese to develop medicine themselves. At that time there were two professors of surgery at Tokyo University: Prof. Julius Karl Scriba (1848–1905), who had been invited to Japan from Germany by the Japanese government in 1881, and Prof. Sankichi Sato (1857–1943), who graduated from Tokyo University in 1882 and studied surgery under Prof. Scriba's guidance. He then went to Germany for further surgical study and returned to Japan in 1887. Yoshinori Tashiro studied surgery for 1 year under Prof. Sato and for the next 5 years under Prof. Scriba. He published a Japanese version (*Tirumansu-geka-sho*) of *Tillmanns's Textbook of Surgery* (Hermann Tillmanns, 1844–1927) in 1894.

In 1899, the Faculty of Medicine of Tokyo University decided to establish a department of orthopedic surgery, and Tashiro was nominated to be the person in charge. In 1900 he was sent by the Ministry of Education to Germany and Austria to study this field. He learned general orthopedic surgery, bone and joint pathology, orthopedic physical therapy, tendon surgery, and the treatment of pes varus and congenital dislocation of the hip under Julius Wolff at Berlin University, Ernest Ziegler at Freiburg University, Oscar Vulpius at Heidelberg University, Albert Hoffa at Wurzburg University, Adolf Lorenz in Vienna, and others. In those days, the environment of orthopedics in Europe was vigorous. In 1895, Wilhelm Roentgen of Wurzburg University had discovered X-rays, and their clinical application to patients had already begun. In 1901, a new orthopedic surgery society was founded, having previously been part of the German Surgical Society. Tashiro was able to experience these energetic and positive changes in Europe at first hand.

Tashiro returned to Japan in 1904. He performed operations as an associate professor of surgery and also treated the wounded of the Russo-Japanese War (1904–1905) at Toyama Army Hospital. On April 5, 1906, the Department of Orthopedic Surgery was established and

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he was appointed professor on May 9 (professorship, 1906–1924). Before activating the department, he investigated the prevalence of orthopedic diseases in Japan. Over a 5-year period (1901–1905) in Prof. Sato's Department of Surgery and over 7 years (1899–1905) in Prof. Kondo's Department of Surgery, Tashiro counted the number of patients with deformities. He found orthopedic deformities in 1200 (3.3%) of 36397 surgical patients, an incidence similar to the 2.13% (1444/67919 patients) found by Hoffa's investigation at the University of Munich. Tashiro later recollected that he was encouraged by the confirmation that there were a considerable number of orthopedic patients in Japan. Among the maladies he noted were tuberculous spondylitis (69.4%), club foot (8.3%), flat foot (5.0%), wry neck (4.7%), poliomyelitis (3.8%), scoliosis (2.5%), pes equinus (2.3%), congenital dislocation of the hip (2.0%), pediatric spastic palsy (0.5%), pes excavatus (0.3%), and bow leg (0.3%). Most of the cases involved infectious diseases and so-called congenital deformities. In retrospect, the large number of cases of tuberculous spondylitis is surprising, and the profile is notably different from the situation encountered today.

Prof. Tashiro believed that the purpose of orthopedic surgery was "prevention and treatment of deformity and dysfunction of the mobility system" and that the anatomical organs that required treatment were the bones, joints, ligaments, tendons, muscles, nerves, and skin. Thus, he thought that the areas this new department might cover should be as broad as possible. He anticipated that orthopedic surgery would become established as a discrete specialty, develop more new fields, and finally be accepted as an indispensable department not only by the medical community but by the general public.

Tashiro noted that orthopedic surgery in its early period had not developed many standard methods of treatment, with most of them still in the trial stage. Therefore, he thought it important to study other related medical fields, such as general surgery, internal medicine including neurology, childhood nutrition, and the anatomy, physiology, and pathology of the mobility system. He also emphasized the need to adopt new fields of related science, such as mechanics and physical science, to establish orthopedics as a specialist field. His direct experience in Europe with X-ray examinations had convinced him that they were essential in orthopedic surgery. In 1922, Kenji Takagi, the professor who succeeded Tashiro, was sent to Germany to research the use of X-rays.

Prof. Tashiro was also interested in casualty medicine and traumatology. He scrutinized orthopedic traumatology in Europe during World War (WW) I (1914–1918) from June 1916 to August 1917. He was strongly convinced of the importance of primary care for fractures on the front line and emphasized that incorrect initial treatment made later treatment difficult, resulting in poor limb function. He foresaw that the industrialization and motorization of Japan would lead to an increase in the number of industrial disasters and traffic accidents and therefore that society would have an increased need for orthopedic treatment. He remarked that the new mission of orthopedic surgery was to apply the knowledge and experience gained during WW I to injured people during peacetime.

Prof. Tashiro showed concern over social issues as well. He supported Matsuzo Kashikura, a high-school teacher who built and ran a school, Kashiwa-gakuen (1921–1959), at his own expense. Kashiwa-gakuen was the first educational and care facility for handicapped children in Japan. After his retirement from Tokyo University, he became a member of the Tokyo City Council and devoted efforts to establishing the first municipal public school Komei-gakko (1932–present) for physically handicapped children. He also devoted himself to establishing an emergency medical care system for Tokyo City based on an ambulance service.

Thus, orthopedic surgery initially appeared as a medical discipline 100 years ago in Japan. It developed greatly thereafter, but considerable time passed before orthopedic surgery was recognized as a specialized field by the medical community and became independent from the Japan Surgical Society. In 1920, orthopedic surgery became one of the subjects of the graduation examination at Tokyo University. By 1924, orthopedic departments had been established in six medical schools in addition to the above three universities, and the number of orthopedic surgeons increased. In 1926, the Japanese Orthopedic Association (JOA) was founded and held its first Congress. At that time there were 118 members. For a considerable time even after establishment of the JOA, the boundary between surgery and orthopedic surgery remained uncertain. Prof. Naoichi Tsuyama (1923–2005), the fourth professor of orthopedics at Tokyo University (professorship, 1965–1984), told me that some general surgeons still performed operations on fractures even after he became professor.

Today (August 2005), the JOA has 21402 members, which is 7.9% of the total number of licensed doctors in Japan (270371 as of December 2004). Prof. Tashiro's dream that orthopedics would become widely accepted, not only by the medical community but by the general public as well, as a specialized field for treating the human mobility system, has now been realized. Hiroshi Kanbara, a member of the JOA Historical Committee, has pointed out several reasons why Prof. Tashiro was successful in importing and establishing this new field. The main reason is that Japanese people had already accepted modern surgery from Europe, and practical methods necessary for orthopedic surgery, such as the

use of X-ray examinations, had been developing. Furthermore, Prof. Tashiro was able to see orthopedic surgery as a whole with the eyes of a well-trained surgeon. I suggest also that other factors accounting for his success were his ability to devote himself to adopting a range of scientific disciplines for establishing the field, to respond to society's needs, and in having great foresight.

Currently, the field of orthopedic surgery and the environment surrounding it are changing rapidly. It is not surprising to find examples of methods, and the individuals practicing them, changing suddenly due to variation in a situation or progress in the technology involved. The boundary between specialties always tends to be blurred: If a remedy for a mobility problem or disease can be obtained using another specialty, the public does not necessarily recognize orthopedics as the sole field capable of handling such an event, even though the mobility system is involved. No field of medicine can survive unless it keeps pace with the progress of science, meets society's needs, and contributes to the betterment of the public. In the words of Prof. Tashiro himself, "The medical specialty that can provide the best remedy is the one that should be used." We must fulfill our social responsibility while keeping an eye on the future.